



A Rockwell Automation Company

## El Paso Corporation / Colorado Interstate Gas Company Douglas Compressor Station Phase 3

### The Client:

El Paso's Western Pipeline group consists of El Paso Natural Gas Company and Colorado Interstate Gas Company and is headquartered in Colorado Springs, Colorado.

Colorado Interstate Gas (CIG) is a major transporter of natural gas in the Rocky Mountain region. The Colorado Interstate Gas system is connected to nearly every major supply basin in the Rocky Mountains as well as production

areas in the Texas Panhandle, Western Oklahoma, Western Kansas, and Wyoming.

To meet the needs of increased coal bed methane production in the Powder River Basin in Northeast Wyoming, the Medicine bow Lateral Pipeline was looped, and the Douglas Compressor Station and Medicine Bow Measurement Facility were expanded.

### The Requirement:

For Phase 3, Hinz was required to modify the existing programs to accommodate a third unit, thus ensuring the electrical drawings and specifications comply with CIG standards in the process. Previously, Hinz programmed and commissioned the station PLC and HMI programs for the first two phases at the Douglas Compressor Station.

The Douglas Station expansion included the installation of a new 7,170HP Solar Taurus 60 centrifugal turbine compressor, a new inlet scrubber, suction valve, discharge valve, bypass valve, and vent valves to tie the station into the Medicine Bow Loop pipeline. New station facilities included two additional ESD volume tanks and additional fire and gas detectors for the compressor building.

The Medicine Bow Measurement Facility expansion included the installation of a new turbine meter, flow control valve and inlet scrubber to service the new Medicine Bow

Loop Pipeline. An existing ROC would need to monitor and control the new equipment. A new ROC would need to be installed at the existing Antelope Meter Facility.

Hinz was contracted to provide station software integration and commissioning services. Hinz provided the required software modifications for the SCADA system, the station PLC, and the unit after-cooler PLC subroutine.

Solar provided all other software modifications to the Unit PLCs while CIG provided the software changes needed for the fuel gas and Medicine Bow metering RTUs.

The control system at Douglas Station consisted of a SCADA system, a station PLC, a solar unit PLC and Turbotronic HMI Panel for each turbine/compressor unit and four Measurement RTUs.

### The Design Solution:

The drawings and specifications utilized for Phase 2 of the Douglas Compressor Station project were used as design criteria for Phase 3. Hinz amended the Phase 2 Functional Requirements Document (FRD) to include the Phase 3 work.

The existing AB PLC and Fix32 HMI programs that Hinz prepared were used as the programming basis of design, allowing Hinz to prepare a commissioning plan for the station PLC program, gas after-cooler programs and HMI programs. The HMI screens and databases were modified for the addition of the third compressor, as follows:

- HMI screens modified or created included: Site Display, Status Display, Governor Control, Station Recycle Valve, EMS Summary, Meter Station, Compressor, Unit Faults, PLC Faults, Vibration Summary, Process Control, Gas Generator, Load Sharing and After-Coolers.
- PLC modifications included: Gas and Fire Detection, Data Highway (DH+) Messaging, Hardwired Fast Stop

Lockout, Station Recycle Valve, After Cooler Programs and Station Programming.

Hinz witnessed all factory Solar software testing.

Hinz provided 100% electrical and controls start-up assistance including installation, checkout and commissioning. Detailed cost estimates, scheduling and budget tracking was performed by Hinz.

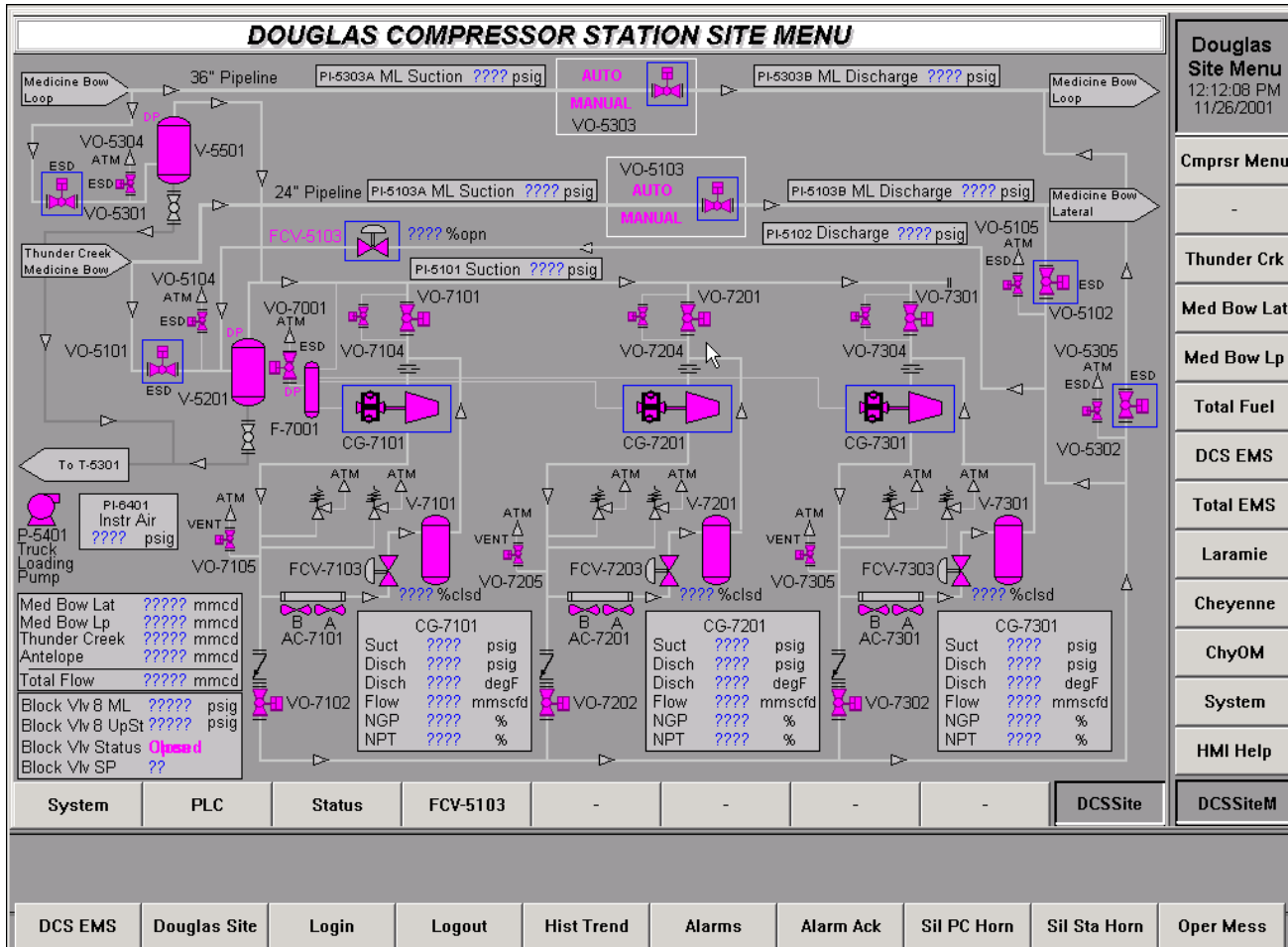
The Station PLC, an A-B PLC5/20C located in the control room, monitors and controls items not directly associated with the turbine/compressor units. The Station PLC coordinates the overall control of the facility and shares data with the unit PLCs via an Allen-Bradley DH+ network. Four (4) Fisher ROC 364 Measurement RTUs were configured for monitoring by the Douglas SCADA system.

The control system was implemented and met required in-service dates and budget constraints.



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## System Specifications:

- (1) Station SCADA node—Intellution Fix32 Version 7.0
- (1) Station Allen Bradley PLC5/20C
- (1) Unit Allen Bradley PLC5/40C
- (1) Turbotronic HMI OIT
- (1) Solar Taurus 60 (7,170 HP) Unit Centrifugal Turbine Compressor
- (4) Fisher ROC RTUs
- (2) Auxiliary Gas Detectors
- Unit PLC to Station PLC communications via Allen-Bradley ControlNet
- Unit HMI to Station HMI communications via Allen-Bradley Data Highway (DH+)

For further information or to contact a Hinz office near you, please check our website at:

[www.hinz.com](http://www.hinz.com)